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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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NIXON & VANDERHYE, PC
1100 N GLEBE ROAD
8TH FLOOR
ARLINGTON, VA 22201-4714

EXAMINER

SCHECHTER, ANDREW M

ART UNIT PAPER NUMBER

2871

DATE MAILED: 09/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/577,007

Applicant(s)

FUJIOKA ET AL.

Examiner

Andrew Schechter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8,9,12 and 13 is/are allowed.
- 6) ☒ Claim(s) 1-6,10,11,14 and 15 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Finality of Last Office Action Withdrawn

1. The finality of the rejection of the last Office action (11 August 2003) is withdrawn. The present Office action replaces that Office Action; however, please refer to the Notice of References Cited and Information Disclosure Statement attached to that Office Action.

Previous Allowability Withdrawn

2. The indicated allowability of claims 1-7, 10, 11, 14, and 15 are withdrawn in view of the newly discovered reference(s) to *Ochi*, Japanese Patent Document No. 11-038389. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1-3, 5, 6, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by *Ochi*, Japanese Patent Document No. 11-038389.

Ochi discloses [see Figs. 1-3, for instance] a liquid crystal display device comprising a pair of substrates [13, 17], a liquid crystal layer [6] interposed between the

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pair of substrates, a plurality of switching elements [1] in a matrix on one of the substrates, gate signal lines [Xi], source signal lines [Yj], and also the electrode over implanted region 7 in Fig. 1], an interlayer insulating film [16] provided over the gate and source signal lines, pixel electrodes [2] over the gate and source signal lines via the interlayer insulating film, wherein the interlayer insulating film extends to a surrounding region [11] of a display pixel area [10], and a continuous electrode pattern [24] for adsorbing an ionic impurity [see abstract] is provided on the interlayer insulating film in the surrounding region so as to surround the display pixel area on all sides [see Fig. 2, and paragraph 0015, for instance], wherein the continuous electrode pattern for adsorbing an ionic impurity is provided on only one of the substrates [see Fig. 1] and is at least partially coplanar with the pixel electrodes [see Fig. 1]. Claims 1 and 15 are therefore anticipated.

The pixel electrodes partially overlap at least one of the gate and source signal lines, so claim 2 is also anticipated. The pixel electrodes and electrode pattern are made of aluminum, a metal material having a reflective property [paragraphs 0009 and 0021], so claim 3 is also anticipated. The electrode pattern is covered with an alignment film [19], so claim 5 is also anticipated. An electric signal having a DC potential [25] is input to the electrode pattern, so claim 6 is also anticipated.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4 and 14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over *Ochi*, Japanese Patent Document No. 11-038389.

The examiner understands Fig. 1 of *Ochi* to show that the electrode pattern is formed simultaneously with the pixel electrodes, in which case claim 14 is anticipated. However, *Ochi* does not explicitly state that the electrode pattern [24] is formed simultaneously with the pixel electrodes. The examiner notes that they are made of the same material (aluminum), are deposited on the same layer, and are shown in Fig. 1 in such a way (same thickness, same hash-marks) as to imply that they are made simultaneously. Therefore, it would be obvious to one of ordinary skill in the art to make them simultaneously, motivated by the efficiency of having only one processing step to make the two elements. Claim 14 is therefore unpatentable.

The examiner understands Fig. 1 of *Ochi* to show the electrode pattern [24] "provided inward with respect to the sealing material" [23] as recited by claim 4, with an extension of the electrode pattern going underneath the sealing material [23] so that it can be connected to the DC voltage [25]. In this case, claim 4 is anticipated. However, *Ochi* does not explicitly state that the electrode pattern is provided inward of the seal, and it might be argued that the figure is ambiguous as to whether a portion of the electrode pattern proper (and not just a connecting line) is underneath the seal. The examiner notes that the function of the electrode pattern in *Ochi* is to attract ions from

the liquid crystal, so there is no purpose served by having it underneath the seal. It would therefore be obvious to one of ordinary skill in the art to provide the electrode pattern inward of the seal (except for a connection line, not properly part of the electrode pattern), motivated by the desire to place the electrode pattern sensibly for its intended purpose. Claim 4 is therefore unpatentable.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Ochi*, Japanese Patent Document No. 11-038389 in view of *Hatano et al.*, U.S. Patent No. 5,805,250.

Ochi does not disclose what the interlayer insulating film [16] is made of, whether it is an organic material or not. *Hatano* discloses an analogous interlayer insulating film between the driving electrodes and the pixel electrodes, and discloses and teaches using an organic material to make it, saying that the film "which is made of an organic material has a low dielectric constant and high quality and can be formed with good productivity, compared with the conventional film made of an inorganic material such as silicon nitride.... thereby providing a good display" [col. 16, lines 50-60]. It would have been obvious to one of ordinary skill in the art to make the film in *Ochi* out of an organic material, motivated by this teaching of *Hatano*. Claim 11 is therefore unpatentable.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Mitsui et al.*, U.S. Patent No. 5,408,345 in view of *Kikuchi et al.*, Japanese Patent Document 5-323336 and further in view of *Ochi*, Japanese Patent Document No. 11-038389.

Mitsui discloses [see Figs. 4-6, for example] a liquid crystal display device comprising a pair of substrates [31, 45], a liquid crystal layer [49], switching elements

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[40], gate and source lines [32, 39], interlayer film [42], and pixel electrodes [38] over the gate/source lines via the interlayer insulating film. *Mitsui* does not disclose an electrode pattern for adsorbing an ionic impurity on the interlayer insulating film in the surrounding region.

However, it would have been obvious for one of ordinary skill in the art to provide such an electrode pattern on the interlayer insulating film in the surrounding region, as taught by *Kikuchi*. *Kikuchi* teaches and motivates [see abstract and Figs. 1, 2, 9 for example] forming an electrode pattern in the surrounding (non-display) region, which when supplied with a voltage acts to trap ionic impurities; this accomplishes the desirable goal of preventing an uneven display. The electrode pattern is only on one side of the display area, on the side recited by claim 10 [between the head of the first and second arrows giving the rubbing direction, see discussion in Paper No. 10, pp. 2-3].

The claim was previously amended to add the limitation that the electrode pattern is "on only one of the substrates" to distinguish it from the combination of *Mitsui* in view of *Kikuchi*, since *Kikuchi* discloses putting the electrode pattern for adsorbing an ionic impurity on both substrates. However, in view of the new reference *Ochi*, it would have been obvious to put the electrode pattern in *Mitsui* in view of *Kikuchi* on only one of the substrates.

Whereas *Kikuchi* discloses its invention in the context of a passive matrix display (without pixel electrodes and switching elements), *Ochi* discloses an electrode pattern for adsorbing ionic impurities in the context of an active matrix LCD panel. (As a side

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note, *Ochi* discloses the pixel electrodes on an interlayer insulating film, which extends into the surrounding region of the display, and forms the electrode pattern coplanar with the pixel electrode, all of which would be obvious in the active matrix device of *Mitsui* in view of *Kikuchi*, motivated by the evident efficiency of manufacturing process of doing so and by the example of *Ochi*.)

With regard to the “on only one of the substrates” limitation, *Ochi* discloses that the common electrode [5] is made to extend in the second substrate [17] to be opposite the electrode pattern [24] [see paragraph 0021, for example]. Given *Mitsui*’s disclosure that its common electrode is already formed “nearly over the entire surface ... on the other substrate” [claim 1], it would be obvious to use this common electrode to oppose the electrode pattern, motivated by the desire to eliminate the trouble (and complication of the manufacturing process) of patterning a separate electrode pattern for the second substrate, as *Kikuchi* does. [The difference between active and passive matrix displays is crucial here, since the active matrix display of *Mitsui* has a single common electrode on the second substrate, as opposed to the many (individually-driven) electrodes in a passive-type display; *Ochi*’s example shows that this single common electrode can have a dual function, opposing both the electrode pattern and the pixel electrodes.] Claim 10 is therefore unpatentable.

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Allowable Subject Matter

9. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 8, 9, 12, and 13 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

The prior art *Ochi* discloses using “another system with other supply voltage” [paragraph 0024] to provide the DC voltage to the electrode pattern. Therefore, the prior art does not provide an electrical signal from at least one of a power supply for a source driving circuit and a power supply for a gate driving circuit, as recited in claim 7. Since the prior art does not disclose (and in fact teaches away from) this feature, claim 7 would be allowable if rewritten appropriately.

Claims 9, 12, and 13 recite the electrode pattern for adsorbing an ionic impurity being only along 2 or 3 particular sides of the display, which is not disclosed by the prior art (*Tanaka* and *Ochi* disclose the electrode pattern on all four sides, *Kikuchi* discloses it only on one side, that recited by the present claim 10). Claims 9, 12, and 13 are therefore allowed.

Claim 8 recites an electrode pattern for adsorbing an ionic impurity provided over the insulating film divided into a plurality of segments all on the same substrate, which is not disclosed by the prior art, so it is allowed.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (703) 306-5801. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Andrew Schechter
25 August 2003

TOANTON
PRIMARY EXAMINER